

What is Claimed is:

1. A lancing device comprising a plurality of lancets positioned in a planar array, said planar array defining a storage plane, wherein an active lancet selected from the plurality of lancets is transversely displaced out of the storage plane into a firing plane that is generally parallel to the storage plane.
2. The lancing device of Claim 1, wherein the plurality of lancets are positioned in a circular pattern within the planar array, with sharp tips of the lancets oriented radially outward.
3. The lancing device of Claim 1, wherein the active lancet is transversely displaced out of the storage plane into a firing plane upon rotational advancement of the plurality of lancets.
4. The lancing device of Claim 3, further comprising a cam surface for transversely displacing the active lancet into the firing plane.
5. The lancing device of Claim 1, wherein the active lancet moves into engagement with a drive mechanism as it is transversely displaced out of the storage plane into a firing plane.
6. The lancing device of Claim 5, wherein each lancet comprises a T-shaped end for engagement with a slotted coupling on a piston portion of the drive mechanism.
7. The lancing device of Claim 5, wherein each lancet comprises a ball-shaped end for engagement with a socket coupling on a piston portion of the drive mechanism.
8. The lancing device of Claim 1, wherein each lancet comprises a removable endcap, and wherein the endcap is separated from the active lancet before the active lancet is transversely displaced out of the storage plane into the firing plane.
9. The lancing device of Claim 8, wherein each lancet comprises a follower in engagement with a cooperating cam surface for separating the endcap from the active lancet.
10. The lancing device of Claim 8, wherein the active lancet is constrained against axial movement as the endcap is separated therefrom.

11. The lancing device of Claim 8, wherein the removable endcap of each lancet comprises at least one extensible arm extending laterally therefrom, for guiding the position of the endcap upon separation from the active lancet.
12. The lancing device of Claim 1, wherein the active lancet is guided by a drive mechanism along a lancing path in the firing plane, between a retracted position fully within a housing of the lancing device and an extended position wherein at least a sharp tip portion of the active lancet extends outwardly from the housing.
13. The lancing device of Claim 12, wherein the housing comprises a base and a cover, said cover defining an opening, and further comprising a movable door for selectively covering and uncovering the opening.
14. The lancing device of Claim 1, wherein the plurality of lancets are contained within a disposable cassette that is removably installed within a reusable housing of the lancing device.
15. The lancing device of Claim 14, wherein the housing comprises a biasing member for biasing the disposable cassette out of the housing to assist in removal.
16. The lancing device of Claim 14, wherein the cassette initially comprises a breakaway tab to assist in installing the disposable cassette in the housing.
17. The lancing device of Claim 14, further comprising an advancing mechanism comprising a rotational arming lever having a pawl for cooperative engagement with teeth of the disposable cassette for moving lancets sequentially into an active position.
18. The lancing device of Claim 17, wherein the pawl is pivotally coupled to the rotational arming lever.
19. The lancing device of Claim 17, wherein the rotational arming lever comprises a cam path for cooperative engagement with a follower portion of a drive mechanism, and wherein rotational actuation of the arming lever energizes the drive mechanism.
20. The lancing device of Claim 1, wherein a used lancet is returned from the firing plane to the storage plane.
21. The lancing device of Claim 20, wherein the used lancet is returned to the storage plane in an axially-offset position to prevent reuse.

22. A lancing device comprising a plurality of lancets positioned in a planar array, said planar array defining a storage plane, wherein an active lancet selected from the plurality of lancets is transversely displaced out of the storage plane into a firing plane that is generally parallel to the storage plane, and wherein each lancet comprises a removable endcap which is separated from the active lancet before the active lancet is transversely displaced out of the storage plane into the firing plane, the active lancet being constrained against axial movement as the endcap is separated therefrom.

23. A lancing device comprising at least one lancet having a sharp tip and a protective endcap covering said sharp tip, said lancing device further comprising a decapping mechanism for removing the endcap from the lancet without axial displacement of the lancet.

24. The lancing device of Claim 23, wherein the decapping mechanism comprises a follower on said endcap, said follower being engaged with a cooperating cam track for radial displacement of the endcap away from the lancet as the lancet is laterally advanced.

25. The lancing device of Claim 23, wherein the protective endcap comprises a pair of extensible arms extending laterally from opposed sides thereof, said arms guiding the position of the endcap as it is removed from the lancet.

26. A lancing device comprising a lancet movable between a retracted position and a lancing position, said lancet comprising a lancet body with a wing projecting outwardly therefrom, and wherein said lancing device further comprises a retraction spring separate from the lancet, said retraction spring contacting the outwardly projecting wing when the lancet is in the lancing position to bias the lancet toward the retracted position.

27. A lancing device comprising a plurality of lancets, an advancing mechanism for advancing each of the plurality of lancets sequentially into an active position, and a drive mechanism for propelling an active lancet selected from the plurality of lancets from a retracted position to a lancing position, wherein the advancing mechanism comprises an arming lever that is rotationally actuated to advance the lancets, and linearly retracted to energize the drive mechanism.

28. The lancing device of Claim 26, wherein the arming lever comprises a cam path engaging a follower portion of the drive mechanism, whereby rotational actuation of the arming lever advances the lancets and energizes the drive mechanism.

29. A lancing device comprising a reusable housing and a cartridge containing a plurality of lancets, the cartridge being removably installed within the housing, said lancing device further comprising a pin extending from the cartridge and movable through a slot in the housing as the cartridge is advanced, wherein the slot has an end preventing further movement of the pin and thereby blocking further advancement of the cartridge to prevent reuse of a lancet.

30. The lancing device of Claim 29, wherein the means for preventing reuse of a lancet comprises a cantilevered member on the cartridge, which drops into engagement with the housing to block advancement of the cartridge.

31. The lancing device of Claim 29, wherein the means for preventing reuse of a lancet comprises a plurality of ledges in a spaced array on the cartridge for engagement with an advancing mechanism, and wherein the spaced array extends only partially along the cartridge so that the advancing mechanism cannot advance the cartridge beyond an end of the array.

32. The lancing device of Claim 29, wherein the means for preventing reuse of a lancet comprises a positioning mechanism for returning used lancets from a firing position to an axially-offset storage position.

33. A cassette for removable insertion within a lancing device, said cassette comprising a plurality of lancets positioned in a planar array, said planar array defining a storage plane, and wherein an active lancet selected from the plurality of lancets is transversely displaceable out of the storage plane into a firing plane within the cassette.

34. The cassette of Claim 33, comprising an outer shell containing the plurality of lancets.

35. The cassette of Claim 34, wherein each lancet comprises a removable endcap with a follower that rides along a cam track in the outer shell.

36. The cassette of Claim 33, further comprising a cam surface projecting transversely inward from the outer shell for displacing the active lancet into the firing plane as the active lancet is laterally advanced.

37. The cassette of Claim 34, wherein a plurality of guide blocks are provided within the outer shell, and wherein each lancet comprises at least one extensible lateral arm connected to one of said guide blocks.

38. The cassette of Claim 37, wherein the plurality of lancets are sequentially movable through an active position wherein the active lancet traverses a lancing stroke between a retracted position within the outer shell and an extended position wherein at least a sharp tip portion thereof projects out of the outer shell, and wherein a retraction spring extends from each guide block for contact with a cooperating portion of one of the plurality of lancets when in the extended position.

39. The cassette of Claim 33, further comprising a breakaway handle portion.

40. The cassette of Claim 33, wherein the plurality of lancets are positioned in a circular pattern within the planar array, with sharp tips of the lancets oriented radially outward.

41. A cassette for removable insertion within a lancing device, said cassette comprising a lancet having a lancet body, a sharp tip projecting from the lancet body, and a protective endcap separably affixed over the sharp tip, said protective endcap comprising a follower in engagement with a cam track, said cam track defining a path for axially displacing the protective endcap from the lancet body as the lancet is laterally advanced within the cassette.

42. The cassette of Claim 41, wherein the plurality of lancets are positioned in a circular pattern within the planar array, with sharp tips of the lancets oriented radially outward, and wherein the cam track is generally circular, with an outwardly-directed eccentric portion where the protective endcap is displaced from the lancet body.